LABORATORY
ELECTRONIC DATA INTERCHANGE
PHASE II
(LEDI II) INSTALLATION GUIDE

LA*5.2*46/LR*5.2*222

Version 5.2

February 2002

Department of Veterans Affairs
Veterans Health Administration
Office of Information Field Office

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Preface

The Veterans Health Information Systems and Architecture (**V***IST***A**) Laboratory Electronic Data Interchange Phase II (LEDI II) Patch LA*5.2*46/LR*5.2*222 Installation Guide Version 5.2 provides the Department of Veterans Affairs Medical Center (DVAMC) Information Resource Management (IRM) staff, Laboratory Information Manager (LIM), and other DVAMC users with a straightforward means for installing LEDI II software.

LEDI II Installation Guide Orientation

LEDI II Installation Guide for patches LA*5.2*46/LR*5.2*222 focuses on easy-to-follow step-by-step instructions. This document consists of the following sections:

Pre-Installation Information: This section lists the requirements that **must** be acknowledged prior to installing the software.

Installation Instructions: This section contains installation instruction including detailed examples of the actual installation process.

Post Installation Information: This section provides all the necessary instructions required to implement the software after the installation process is completed.

LEDI II Installation Guide Screen Displays

Screen Captures
The computer dialogue appears in Courier font, no larger than 10 points.
Example: `Courier font 10 points`

User Response
User entry response appears in boldface type Courier font, no larger than 10 points.
Example: **`Boldface type`**

Return Symbol
User response to computer dialogue is followed by the <RET> symbol that appears in Courier font, no larger than 10 points, and bolded. **Example:** `<RET>`

Tab Symbol
User response to computer dialogue is followed by the symbol that appears in Courier font, no larger than 10 points, and bolded. **Example:** **`<Tab>`**

LEDI II Software and Documentation Retrieval Locations

NOTE: All sites are encouraged to use the File Transfer Protocol (FTP) capability. Use the FTP address "download.vista.med.va.gov" (without the quotes) to connect to the first available FTP server where the files are located.

The **V***IST***A** LEDI II software, Installation Guide, and User Manual are available on the ANONYMOUS.SOFTWARE directories at the following Office of Information Field Offices (OIFOs): LAB_LEDI_II_IG.PDF and LAB_LEDI_II_UM.PDF.

OI FIELD OFFICE	FTP ADDRESS	DIRECTORY
ALBANY	ftp.fo-albany.med.va.gov	[ANONYMOUS.SOFTWARE]
HINES	ftp.fo-hines.med.va.gov	[ANONYMOUS.SOFTWARE]
SALT LAKE	ftp.fo-slc.med.va.gov	[ANONYMOUS.SOFTWARE]

LEDI II Software and Documentation Retrieval Formats

V*IST***A** LEDI II software and documentation files are exported in the following retrieval formats:

File Names	Contents	Retrieval Formats
LAB_LEDI_II.KID	LA*5.2*46 KIDS build	ASCII
	LR*5.2*222 KIDS build	ASCII
LAB_LEDI_II_IG.PDF	LABORATORY ELECTRONIC DATA	BINARY
LAB_LEDI_II_UM.PDF	LABORATORY ELECTRONIC DATA	BINARY

Website Locations:

The **V*IST*A** LEDI II Installation Guide (i.e., LAB_LEDI_II_IG.PDF and LAB_LEDI_II_IG.DOC) and LEDI II User Manual (i.e., LAB_LEDI_II_UM.PDF and LAB_LEDI_II_UM.DOC) in Portable Document Format (PDF) and MS Word (DOC) Format are available at the following **V*IST*A** Intranet locations:

Laboratory Version 5.2 Home Page
http://vista.med.va.gov/ClinicalSpecialties/lab/

V*IST*A Documentation Library (VDL)
http://vista.med.va.gov/vdl/

Table of Contents

Introduction

Overview

The Veteran Integrated Service Network (VISN) mission is to consolidate electronic lab test ordering and lab test result reporting throughout all Veterans Affairs (VA) Health Care Facilities laboratories within a VISN, between VISNs, and non-VA organizations (i.e., commercial reference laboratories) without diminishing the quality of services in patient medical care.

V*ISTA* Laboratory Electronic Data Interchange (LEDI)

The **V***ISTA* Laboratory Electronic Data Interchange (LEDI) software provided the Laboratory V. 5.2 software package and Laboratory's Automated Instrument (AI) software application the following features and functionalities:

- Laboratory Electronic Data Interchange (LEDI) – Electronic Messaging
- Electronic Lab Test Ordering
- Electronic Lab Test Results Reporting
- Bar-code Specimen Accessioning
- Workload

V*ISTA* Laboratory Electronic Data Interchange Phase II (LEDI II)

The **V***ISTA* Laboratory Electronic Data Interchange Phase II (LEDI II) software application provides electronic messaging for Lab Test Ordering and Lab Test Results Reporting between VA Health Care Facilities laboratories based on the Health Level Seven (HL7) Version 2.3 Standard Specification and **V***ISTA* Health Level Seven (HL7) Version 1.6 Standard Specification. These Specifications are used as the basis for defining **V***ISTA* Laboratory Universal Interface (UI) and LEDI HL7 Interface Standard Specification Version 1.2. LEDI II contain the following enhanced functionality:

- Laboratory Electronic Data Interchange (LEDI) - Electronic Messaging
- Electronic Lab Test Ordering
- Electronic Lab Test Results Reporting
- Bar-code Specimen Accessioning
- Workload

LEDI II Enhancements and Modifications

Enhancements:

Sending/Receiving Laboratory HL7 Messages:
1. **New** functionality has been added for sending and receiving Laboratory HL7 orders/results messages with non-VA facilities (Commercial Reference Laboratories).

TCP/IP Protocol as a Communication Protocol:
2. Additional **new** support is added for TCP/IP protocol as a communication protocol for the transmission of LEDI HL7 messages (i.e., requiring patch HL*1.6*19 to have been successfully installed). The implementation of this communication protocol in lieu of VA MailMan protocol will significantly increase transmission speed of messages and reduce system overhead/storage. Both client and server must coordinate the switch to this **new** communication protocol transmission method. The following two logical links are established to exchange messages:

- Server (listener) logical link used to receive and process messages.
- Client logical link used to transmit messages.

Building Lab Test Orders:
3. The process of building orders in the LAB PENDING ORDERS ENTRY file (#69.6) has been **enhanced** to use information from the LAB SHIPPING CONFIGURATION file (#62.9), to create orders based on the host site's specified collection sample and urgency.

Processing NTE Segments:
4. The capability to process NTE segments following OBX segments have been **enhanced** to site-selectable. Comments found attached to specific lab test results are stored as comments. The AUTO INSTRUMENT file (#62.4), CHEM TESTS subfile (#30), REMARK PREFIX field (#19) can be used to specify a comment prefix that is made as part of the comment.

Storing Test Reference Ranges:
5. Storing test reference ranges, abnormal flags, and the name of the performing laboratory have been **enhanced** to site-selectable. These parameters are stored as COMMENTS with the results. This information is prefixed with the REMARK PREFIX field (#19), of the AUTO INSTRUMENT file (#62.4).

Specifying Final or Incomplete Lab Test Results:
6. The ability to specify whether final or incomplete lab test results are processed has been **enhanced** to site-selectable.

SM40 Shipping Code:
7. The KIDS install will perform a look up on the LAB ELECTRONIC CODES file (#64.061), LAB ABBR field (#3), for the SM40 shipping code entry (i.e., used for recording events in the LAB SHIPPING EVENT file (#62.85). If the SM40 shipping code entry does not already exist in this file, it will then be added. Entries in File (#64.061) pertaining to the LEDI Shipping Manifests are name spaced "SM".

Building a Shipping Manifest:
8. The process for building a shipping manifest has been **enhanced** to allow the user to specify the starting and ending accession numbers to check within an accession area. The building a shipping manifest feature will shorten the manifest building time when searching a yearly accession area with a large number of accessions. This new feature allows the site to skip the accession numbers that were completed earlier in the year and no longer need to be checked to determine if any of the tests meet the criteria for building to a manifest.

Closing a Shipping Manifest:
9. The process of closing a Shipping Manifest has been **enhanced** to perform **new** checks for the following required information:

- Each lab test has an order NLT code assigned.
- When shipping to a facility that does not use VA NLT codes for lab test ordering, the appropriate non-VA lab test codes/names is designated for all tests on the Shipping Manifest.
- Site-specified required patient/specimen information is entered.

Result (ORU) Messages:

10. LEDI II Result (ORU) Messages includes the test interpretation found in LABORATORY TEST file (#60) as a comment (i.e., NTE segment) following the lab test results. Lab test results requiring storage is checked against the VA FileMan input transform for the data name used to store the Lab test results in LAB DATA file (#63). If the lab test results data name does not pass the VA FileMan input transform check, then an error message is generated via the Lab Universal Interface error reporting process. Result values “canc”, “pending”, or “comment” are stored in LAB DATA file (#63).

11. The process that triggers LEDI II Result (ORU) Message generation, during lab result verification, has additional checks to confirm that the results being returned to the collecting site match the ordering information from the collecting facility. Patient and specimen identifiers used by the host and collection facilities are checked for expected consistency. When identifiers do not match, the HL7 message transmission will be aborted and an error message generated via the Lab Universal Interface error reporting process. Error messages #40-45 have been added to the LA7 MESSAGE LOG BULLETINS file (#62.485) to support this functionality. These are additional safety checks being incorporated into the software in response to a recent patient safety alert involving the Laboratory V. 5.2 Package.

Referral Patient Multi-purpose Accession [LRLEDI] option

12. LEDI II software contains additional support when using the Referral Patient Multi-purpose Accession [LRLEDI] option to accession specimens thru the Laboratory Electronic Data Interface (LEDI). LEDI II now builds the LAB PENDING ORDERS ENTRY file (#69.6) with additional information concerning mapping to local host test urgency. This local urgency information, stored in File (#69.6), is utilized when accessioning LEDI specimens at the host laboratory.

Modification

VA FileMan Database Server Call:
Laboratory Package V. 5.2 previously used a classical VA FileMan DIE Call when storing comments in LAB DATA file (#63). This VA FileMan DIE Call did not allow the comment to contain a semi-colon ";" character because FileMan used this character to parse fields requiring editing in the DR string. This function has been **changed** to the VA FileMan Database Server Call, which does not have this restriction. Comments can now contain the semi-colon ";"character.

V*IST***A** BLOOD BANK SOFTWARE V5.2 DEVICE PRODUCT LABELING STATEMENT

June 10, 1999

V*IST***A** Laboratory V. 5.2 Package patches LA*5.2*46/LR*5.2*222 contain no changes to software controlled by VHA DIRECTIVE 99-053, titled VISTA BLOOD BANK SOFTWARE.

Pre-Installation Instructions

The pre-installation instructions establishes specific requirements that **must** be accomplished before installing LEDI II patches LA*5.2*46 and LR* 5.2*222. The following VAMCs assisted in testing the LEDI II software enhancements and modifications on various hardware platforms prior to the actual release date:

Test Sites

VAMC Test Site	Hardware Platform
Alexandria, LA	DEC Alpha NT/Cache
Biloxi, MS VAMC	DEC Alpha VMS/DSM
Birmingham, AL VAMC	DEC Alpha VMS/DSM
Fayetteville, AR VAMC	DEC Alpha VMS/DSM
Houston, TX VAMC	DEC Alpha VMS/DSM
Jackson, MS VAMC	DEC Alpha VMS/DSM
Little Rock, AR VAMC	DEC Alpha VMS/DSM
Madison, WI VAMC	DEC Alpha VMS/DSM
Milwaukee, WI VAMC	DEC Alpha VMS/DSM
Muskogee, OK VAMC	DEC Alpha NT/Cache
Oklahoma City, OK VAMC	DEC Alpha VMS/DSM
Shreveport, LA VAMC	DEC Alpha VMS/DSM
Hines, IL VAMC	DEC Alpha VMS/DSM

Staffing Requirements

Information Resource Management (IRM) Staff:

IRM staff is required for installing patches LA*5.2*46/LR*5.2*222, defining mail groups, and menu assignments.

IRM and LIM Staff

The collection and host facilities IRM and LIM staff **must** coordinate the implementation of the LEDI II setup after the patches have been installed. The LEDI II setup process **must** be performed in the sequence specified in the **V*IST*A** LEDI II User Manual.

Hardware Platform

V*IST***A** LEDI II software application operates on the current VA computer hardware systems.

LEDI II Equipment Requirements

To realize the maximum benefit of the **V***IST***A** LEDI II software functionality, barcode printers, barcode accession labels, and scanners are required for accessioning patient's specimen. The manual accessioning method is intended as a backup procedure for accessioning patient's specimen.

NOTE: Using the manual accessioning method will result in significant risk of transcription errors and increased accessioning time.

Collection Facility Equipment Requirements:

1. Laser quality printer capable of supporting Hewlett Packard PC Language Version 3 or higher for printing Code 128 symbology Shipping Manifest bar code.

2. Accession label bar code printer, capable of multiple formats, multi-font, 360-degree print orientation, supporting Code 39, Code 128, and PDF417.

Comparable Items:
These items are only for comparison of features and price.
Any vendor's equipment meeting the specifications is acceptable.

- [HP LaserJet 5p/Kyocera laser printers F-Series] Shipping Manifest printer.
- [Intermec 4000 series printers/Zebra ZPL-compatible label printers] Specimen Accession bar coded labels.

Host Facility Equipment Requirements

NOTE: Bar code laser scanner guns are recommended because future development will provide two-dimensional bar codes shipping manifest. Experience has been much more favorable with scanner guns compared to wands or pens.

1. Bar code laser scanner gun, 1D/2D, sealed housing, RS 232 CRT connecting cable, 5 foot cable length, auto discriminating, Raster scanning scan element, Retro-collective, optical resolution at least 6.6 mil (0.17) mm, immune to fluorescent lighting. Auto-Decodes following symbologies: Code 39, Code 39 full ASCII, Code 128, Interleaved 2 of 5, Codabar, UCC/EAN 128, PDF417, and 1 and 2 dimensional bar code.

2. Hands free stand for laser guns.

3. Appropriate power supply for scanner gun.

Comparable items:
These items are only for comparison of features and price.
Any vendor's equipment meeting the specifications is acceptable.

Scanners generally are attached to a Cathode Ray Tube (CRT) used in the central specimen accessioning area. Match the scanner to your particular CRT/keyboard configuration. If you are using Personal Computers (PCs) instead of CRT dumb terminals, these configurations usually require different cables and wedges.

The following ordering numbers will not be the same for all configurations.

- Symbol 4800 2D/1D Scanner System LS4804-I00A
- Power Supply 12Ov 50-14000-008STI40-0200
- Dual port Synapse RS232 Cable (sometime termed a wedge)
- Intellistand 20-13906-01

LEDI II Implementation Requirements

As of the release date of this software, there is no national solution to implement a laboratory electronic HL7 standard interface to a facility or other entity outside the VA wide area network. National communication security concerns are still being debated by the Department of Veterans Affairs (VA) and are awaiting resolution. At present, a VA medical center, which intends to utilize this software in conjunction with an interface to a commercial reference laboratory or other non-VA information system entity, will need to coordinate with the vendor an acceptable communication method. Any implementation will need to be approved by the facility and VISN Information Security Officer (ISO) and meet current VA security requirements for external electronic connections. **Note:** See VHA Directive 6212, Security of External Electronic Connections and VHA Directive 6210, Automated Information Systems (AIS) Security for additional information and guidance. Additional security information may be obtained from the Health Information Security Service (HISS) web page at: http://vaww.va.gov/miss/

Implementation of a HL7 messaging interface between the VA **V***IST***A** Laboratory package and a non-VA information system consists basically of three parts:

*****V*IST***A** Laboratory LEDI II software.
*****Certified communication software and hardware.
*****Non-VA information system capable of sending and receiving Laboratory HL7 order and result messages.

All three must be functional to utilize the capabilities of this LEDI II software patch. The implementation, setup, and configuration of vendor provided hardware and software is NOT addressed by this documentation. Consult the vendor provided documentation and instructions to interface to the **V***IST***A** Laboratory package.

Disk Space Requirements

The required disk space is difficult to predict because the amount of disk space depends on what extent the new features are used. Due to the new requirement to journal the ^LAHM global, there will be an immediate increase in journal disk space. If none of the LEDI messaging features are implemented a 5-15% increase in disk space can be expected in the ^LR and ^LRO globals. If MailMan is used as the HL7 messaging protocol the ^XMB global will experience increased growth. Depending on the LEDI messaging activity and the number of trading partners, one could expect 20-40% disk space increase overall.

Performance/Capacity Impact

Performance estimates and capacity measures are difficult to obtain because LEDI II software has components in several applications. It is estimated that LAB SERVICE and AUTOMATED LAB INSTRUMENTS applications may impact the system by requiring 5-12% more Central Processing Unit (CPU) cycles.

Kernel Installation and Distribution System

LEDI II software distribution is using the Kernel Installation and Distribution System (KIDS).

NOTE: For further instructions on using KIDS please refer to the Kernel V. 8.0 Systems Manual.

Health Level Seven (HL7)

LEDI II is using the **V*IST*A** HL7 V. 1.6 software to transport data. The software will send lab orders (ORM), order acknowledgment (ORR), and lab results (ORU) messages via VA MailMan or TCP/IP.

^VASITE

The ^VASITE routine call is used to determine the collection facilities Institution Number. This information is needed and used to establish clear and concise linking of entries in the following files:

- HL APPLICATION PARAMETER file (#771)
- HL LOGICAL LINK file (#870)
- AUTO INSTRUMENT file (#62.4)
- LA7 MESSAGE PARAMETER file (#62.48), (i.e., both COLLECTION and HOST facilities laboratory databases).

Test Account

It is highly recommended that the LEDI software be installed into a test account before installing into a live production account. The test and production accounts **must** include all required software versions and patches to ensure a successful test installation of the LEDI II Patches LA*5.2*46/LR*5.2*222.

Namespace

LEDI II patches LA*5.2*46 and LR*5.2*222 are using the LA and LR namespaces.

Nightly Task

The Lab Messaging Nightly Cleanup [LA7TASK NIGHTY] option **must** be scheduled to run on a daily basis. This option is used to purge the data in the LA7 MESSAGE QUEUE file (#62.49).

LEDI II Required Mail Groups

LAB MESSAGING Mail Group

This is a general mail group used by the LAB Universal Interface and LEDI II software to address alerts when conditions are detected requiring review and/or corrective action. The members of this mail group should, at the minimum, include the LIM and selected Lab and IRM personnel responsible for maintenance and support of the LAB Universal Interface and LEDI II software. This software utilizes several Kernel Alerts. These alerts are triggered and sent to members of the LAB MESSAGING mail group for the following conditions:

- When the scheduled tasked Lab Messaging Nightly Cleanup [LA7TASK NIGHTY] option or the Start/Stop Auto Download Background Job [LA7 ADL START/STOP] option is run and more than 500 entries are found scheduled for downloading via the Lab Universal Interface an alert is sent notifying members of this condition.

- When the scheduled tasked Lab Messaging Nightly Cleanup [LA7TASK NIGHTY] option or the Lab Messaging File Integrity Checker [LA7 CHECK FILES] option is run and LA7 MESSAGE QUEUE file (#62.49) is found to have bad entries and/or cross-references. An alert is sent notifying members of this condition.

LA7V* Mail Groups

These mail groups are used by the HEALTH LEVEL SEVEN package for transmitting LEDI HL7 messages when VA MailMan is selected as the HL7 communication protocol. These mail groups are created by the LEDI Setup [LA7V SETUP] option using the LA7V name space concatenated with the receiving facility's primary station number. **For example**, to send HL7 messages to Dallas OI Field Office, VA Station Number 170, the LEDI Setup option would create a mail group LA7V 170. Other than the remote member added by the LEDI Setup option, no local or remote members should be added to these mail groups.

Local Mail Groups

It is highly recommended that each facility designate local mail groups for receiving the "New Results", "Orders Received", and the "Error on Message " alerts associated with the LEDI II software application. Please review the following section on ALERTS for information on the various alerts that are generated by LEDI II.

Alerts

LEDI II software uses the LA7 MESSAGE PARAMETER file (#62.48) for sending alerts to the mail group specified in the Alert Condition subfile (#68.481). The facility should designate a local mail group to use for notification of the alerts. These alerts and the associated mail group are configured using the LEDI Setup [LEDI SETUP] option, within the message configuration section of this option. The following are the three types of alerts that can be turned on for each configuration:

1. New Results Alert - notifies members when the Lab Universal Interface software has processed an HL7 message containing test results. An example of this information type of alert is: "Lab Messaging – New results received for LA7V HOST 578".

2. Error Alert - notifies members of error conditions encountered during the processing of a Laboratory Universal Interface message. Recommend that sites utilize the LAB MESSAGING mail group to notify local users of error conditions within the Laboratory Universal Interface/LEDI software. Processing the alert allows the user to view/print the error message and the associated HL7 message. An example of this action type of alert is: "Lab Messaging error #17 on message #246164473".

3. New Orders Received Alert – notifies members when the Laboratory Universal Interface software has received electronic orders related to a collecting facility's shipping manifest. An example of this information type of alert is: "Lab Messaging - Manifest# 537-20011030-3 received from LA7V COLLECTION 537".

Data Dictionary Changes

The following files have been **modified** in support of the LEDI II software application release:

1. AUTO INSTRUMENT file (#62.4)
2. LA7 MESSAGE PARAMETER file (#62.48)
3. LA7 MESSAGE LOG BULLETINS file (#62.485)
4. LAB SHIPPING MANIFEST file (#62.8)
5. LAB SHIPPING CONFIGURATION file (#62.9)
6. LAB ELECTRONIC CODES file (#64.061)
7. REFERRAL PATIENT file (#67)
8. LAB PENDINGS ORDERS ENTRY file (#69.6)

AUTO INSTRUMENT file (#62.4)

This file is **modified** in support of processing Electronic Result Messages. The following **new** and **modified** fields are site-configurable using the LEDI Setup [LA7V SETUP] option:

STORE REMARKS field (#18): This **new** field handles storing of comments received in HL7 messages at the specimen/accession level. This field controls if comments that are associated wit an accession or specimen stored with the results. The default is “NO”.

ACCEPT RESULTS FOR THIS TEST field (#14): This field has been **modified** to include additional code to only process “FINAL” results. This field determines if results (i.e., HL7 OBX segments) are processed and stored. If nothing is entered, the default will be “YES”.

STORE REMARKS field (#18): This **new** field determines if remarks/comments (HL7 NTE segments) are processed and stored with results. This applies only to remarks/comments that relate to a test. This field is a flag to determine if and when certain information in HL7 message are processed and stored in the Laboratory software package.

REMARK PREFIX (#19): This **new** field is used by Lab Universal Interface software when processing HL7 messages containing NTE (notes) segments that follows OBX (test results) segments. These NTE segments apply to the test, not to the specimen. This field is a flag to determine if and when certain information in HL7 messages are processed and stored in the Laboratory software package.

STORE PRODUCER'S ID (#20): This **new** field is a flag to determine if and when certain information in HL7 messages are processed and stored in the Laboratory package. This field stores the name and identifier of performing lab.

STORE REFERENCE RANGE (#21): This **new** field is flag to determine if and when certain information in HL7 messages are processed and stored in the Laboratory package. This field stores the reference range with results.

STORE ABNORMAL FLAGS (#22): This **new** field is flag to determine if and when certain information in HL7 messages are processed and stored in the Laboratory package. This field stores the abnormal flags with results.

LA7 MESSAGE PARAMETER file (#62.48)

This file stores and determines how to build and process HL7 messages. The processing routine specified entries related to the original LEDI has been **modified**. Existing entries stored in this file are updated as deemed appropriate. The following two **new** fields have been added in support of the LEDI II software enhancements.

MULTIPLE ORDERS field (#10): This **new** field determines when building a HL7 message if message should contain only one patient/order or multiple patients/orders. Default is multiple patients per message if possible. This allows site to configure message building when communicating with a non-VA system that cannot handle a message that has more than one patient in the message. It applies to both order (ORM) and result (ORU) messages.

When communicating with a VA facility this field can be left blank (default) or set to 0 - MULTIPLE PATIENTS. If the receiving system can only accept one patient per HL7 message then select 1-SINGLE PATIENT. This will place multiple orders or results for multiple orders in one message but only one patient will be contained in the message.

If the receiving system can only accept one order per HL7 message then select 2-SINGLE ORDER. This will place in the message one order or the results associated with one order for a single patient. **Note:** An order in the VA is considered those tests found on one accession. What the VA considers as an accession other non-VA systems may refer to as an order.

INTERFACE TYPE field (#11): This **new** field determines how and for what purpose this configuration is used. It allows the laboratory software to handle and process messages.

LA7 MESSAGE LOG BULLETINS file (#62.485)

LEDI II software application uses the following error code numbers to build the text of the error message. The codes marked as modified had the text field modified and/or the build logic changed. Codes starting at 34 are all **new**:

CODE: 15 *(Modified)*

```
  TEXT: Msg # |1|, test code = null: |2|
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=LA76249,LA7TXT(2)=LA7OBX
```

CODE: 17 *(Modified)*

```
  TEXT: Msg # |1|, test value = null: |2|
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=LA76249,LA7TXT(2)=$G(LA7OBX)
```

CODE: 18 *(Modified)*

```
  TEXT: Msg # |1|, test is set up incompletely in file 62.4: |2| for test |3|
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=LA76249,LA7TXT(2)=$S($L($P($G(LA7624(0)),"^")):$P(LA7
624(0),"^"),1:+$G(LA7624)),LA7TXT(3)=$S(+$G(LA76241(0)):$P($G(^LAB(60,+LA76241
(0),0)),"^"),1:+$G(LA76241))
```

CODE: 23 *(Modified)*

```
  TEXT: Call to HLMA to generate a HL7 message with Msg ID: |1| failed with
error code |2|, |3|                          SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$P($G(HLRESLT,"UNKNOWN"),"^"),LA7TXT(2)=$P($G(HLRESLT),"^",2),LA7TXT
(3)=$P($G(HLRESLT),"^",3)
```

CODE: 25 *(Modified)*

```
  TEXT: Msg # |1| contained an unknown |2|.
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=LA76249,LA7TXT(2)=LA7SITE
```

CODE: 26 *(Modified)*

```
  TEXT: Msg # |1| was unable to find a test for order code |2|.
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7X)
```

CODE: 29 *(Modified)*
```
  TEXT: ORC and OBR mismatch in msg # |1|, the |2| order for |3| was not
created
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7OTST),LA7TXT(3)=$G(LA7PNM)
```

CODE: 30 *(Modified)*
```
  TEXT: Null name identified in msg # |1| while processing the order for
specimen id |2|.
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7SID)
```

CODE: 31 *(Modified)*
```
  TEXT: Msg # |1| was unable to get lock on File #69.6 to add the |2| order
for|3|.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7OTST),LA7TXT(3)=$G(LA7PNM)
```

CODE: 32 *(Modified)*
```
  TEXT: A problem in msg # |1| prevented the |2| order for |2| from being
processed.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7OTST),LA7TXT(3)=$G(LA7PNM)
```

CODE: 33 *(Modified)*
```
  TEXT: Msg # |1| was unable to finish processing entry # |2| in File #69.6
due to a lock.
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7696)
```

CODE: 34 *(New)*
```
  TEXT: Msg # |1| contained an invalid HL7 segment identifiers |2|.
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7STYP)
```

CODE: 35 *(New)*
```
  TEXT: Msg # |1| contained an invalid encoded HL7 segment |2|.
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7STYP)
```

CODE: 36 *(New)*

```
  TEXT: Msg # |1| was unable to find a result code for test dataname |2|.
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7X)
```

CODE: 37 *(New)*

```
  TEXT: Msg # |1| - |2|
  SEND ALERT: YES
  BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7X)
```

CODE: 38 *(New)*

```
  TEXT: Msg #|1| - Cannot adjust # of decimals for data name |2| with data
type |3|
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LA7FLDNM),LA7TXT(3)=$G(LA7DDTYP)
```

CODE: 39 *(New)*

```
  TEXT: Msg #|1| - Cannot identify an active entry in file SHIPPING
CONFIGURATION (#62.9) file for collecting lab |2| and host lab |3|
combination.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$$GET1^DIQ(4,$G(LA7CSITE)_",",.
01),LA7TXT(3)=$$GET1^DIQ(4,$G(LA7HSITE)_",",.01)
```

CODE: 40 *(New)*

```
 TEXT: Msg #|1| - Result's subscript |2| does not match accession area's
subscript.
 SEND ALERT: YES
 BUILD LOGIC: S LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LRSS)
```

CODE: 41 *(New)*

```
  TEXT: Msg #|1| - Result's LRDFN |2| does not match accession |3| LRDFN |4|.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LRDFN),LA7TXT(3)=$P($G(LA768(.2)),"^"),LA7T
XT(4)=$P($G(LA768(0)),"^")
```

CODE: 42 *(New)*

```
  TEXT: Msg #|1|, Result's inverse date/time |2| does not match accession |3|
in verse date/time |4|.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(LRIDT),LA7TXT(3)=$P($G(LA768(.2)),"^"),LA7T
XT(4)=$P($G(LA768(3)),"^",5)
```

CODE: 43 *(New)*

```
  TEXT: Msg #|1|, Remote UID |2| does not match accession |3| UID |4|.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(RUID),LA7TXT(3)=$P($G(LA768(.2)),"^"),LA7TX
T(4)=$P($G(LA768(.3)),"^",5)
```

CODE: 44 *(New)*

```
  TEXT: Msg #|1|, Result's remote UID |2| does not match remote UID |3|.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$G(RUID),LA7TXT(3)=$P($G(LA763("ORU")),"^")
```

CODE: 45 *(New)*

```
  TEXT: Msg #|1|, Result's UID |2| does not match accession's UID |3|.
  SEND ALERT: YES
  BUILD LOGIC: S
LA7TXT(1)=$G(LA76249),LA7TXT(2)=$P($G(LA763("ORU")),"^"),LA7TXT(3)=$P($G(LA768
(.3)),"^")
```

LAB SHIPPING MANIFEST file (#62.8)

This file contains **new** fields that allow the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support and for storing required patient/specimen data sent with a Shipping Manifest. This data may include specimen volume, weight, collection end date/time (collection duration), and patient height and weight data. LOINC codes are used to identify patient height, weight, and specimen weight when appropriate. The SHIP VIA field (#.04) of this file, did not contain data pertaining to when a Shipping Manifest is created. This field is updated with the existing Shipping Manifest data stored in the LAB SHIPPING CONFIGURATION file (#62.9). The following new fields has been added to this file:

TEST CODING SYSTEM field (#.05): This **new** field allows the selection of the test coding system used when building HL7 order (ORM) messages. If orders are being sent to a non-VA facility and the facility cannot accept VA test order codes then answer with the type of coding system. "NON-VA" indicates that the other system is using a local coding system. The laboratory shipping software will then use the "NON-VA" test codes entered for each test on this configuration.

REQUIRE PATIENT HEIGHT field (#1.1): This **new** field determines if the patient's height is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of shipping manifest will check for entry of the patient's height and prevent release if absent.

PATIENT HEIGHT field (#1.11): This **new** field stores the patient's height for transmission in the HL7 ORM order message and display on the shipping manifest when required to accompany test orders and specimens. See REQUIRE PATIENT HEIGHT field (#1.1). Source of data is patient's medical record.

PATIENT HEIGHT UNITS field (#1.13): This **new** field contains units used to measure the patient's height. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that are measurements.

PATIENT HEIGHT CODE field (#1.14): This **new** field is a pointer to the LAB LOINC file (#95.3). Select the appropriate LOINC code to identify the patient's height.

REQUIRE PATIENT WEIGHT field (#1.2): This **new** field determines if the patient's weight is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the patient's weight and prevent release if absent.

PATIENT WEIGHT field (#1.21): This **new** field stores the patient's weight for transmission in the HL7 ORM order message and display on the shipping manifest when required to accompany test orders and specimens. See REQUIRE PATIENT WEIGHT field (#1.2). Source of data is Patient's medical record.

PATIENT WEIGHT UNITS field (#1.23): This **new** field contains units used to measure the patient's weight. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that are measurements.

PATIENT WEIGHT CODE field (#1.24): This **new** field select the appropriate LOINC code to identify the patient's weight.

REQUIRE COLLECTION VOLUME field (#2.1): This **new** field determines if the specimen's collection volume is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the specimen's collection volume and prevent release if absent.

COLLECTION VOLUME field (#2.11): This **new** field stores the specimen's collection volume transmission in the HL7 ORM order message printing on the shipping manifest when required to accompany test orders and specimens. See REQUIRE COLLECTION VOLUME field (#2.1).

COLLECTION VOLUME UNITS field (#2.13): This **new** field contains the units used to measure the specimen's collection volume. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that is measurement.

COLLECTION VOLUME CODE field (#2.14): This **new** field is used to enter the appropriate LOINC code to identify the specimen's collection volume.

REQUIRE COLLECTION END D/T field (#2.2): This **new** field determines if the specimen's collection end date/time is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the specimen's collection end date/time and prevent release if absent.

COLLECTION END DATE/TIME field (#2.21): This **new** field stores the specimen's collection end date/time for transmission in the HL7 ORM order message and on the shipping manifest when required to accompany test orders and specimens. See REQUIRE COLLECTION END D/T field (#2.2).

COLLECTION DURATION field (#2.22): This **new** field stores the calculated duration of the specimen collection. Based on specimen's collection date/time and end date/time. Reported in the units specified in the COLLECTION DURATION UNITS field (#2.23).

COLLECTION DURATION UNITS field (#2.23): This **new** field contains units used to calculate the specimen's collection duration. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that is a measurement and relate to time.

COLLECTION DURATION CODE field (#2.24): This **new** field is used to enter the appropriate LOINC code to identify the specimen's collection duration.

REQUIRE COLLECTION WEIGHT field (#2.3): This **new** field determines if the specimen's collection weight is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the specimen's collection weight and prevent release if absent.

COLLECTION WEIGHT field (#2.31): This **new** field stores the specimen's collection weight for transmission in the HL7 ORM order message and on the shipping manifest when required to accompany test orders and specimens. See REQUIRE COLLECTION WEIGHT field (#2.3).

COLLECTION WEIGHT UNITS field (#2.33): This **new** field contains the units used to measure the specimen's collection weight. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that is a measurement.

COLLECTION WEIGHT CODE field (#2.34): This **new** field is used to enter the appropriate LOINC code to identify the specimen's collection weight.

LAB SHIPPING CONFIGURATION file (#62.9)

This file contains **new** and **modified** fields that allow the collecting facilities to specify required patient/specimen information sent with a Shipping Manifest. This may include specimen volume, weight, collection end date/time (collection duration), patient height, and weight. LOINC codes are used to identify patient height, weight, and specimen weight when deemed appropriate. The Edit Shipping Configuration [LA7S EDIT 62.9] option is used for editing the following new fields exported with the LEDI II software release:

URGENCY field (#.04): Originally this field was only used by collection facilities. This filed has been **modified** to serve dual purposes:

COLLECTING FACILITIES: When shipping laboratory tests for a particular urgency, the particular urgency **must** be specified to match the lab test urgency of the accession for the accession/test to be placed on the Shipping Manifest.

HOST FACILITIES: This field is used by LEDI software at the host facility to determine the entry in the host site's URGENCY file (#62.05) to use for ordering when the host site has more than one entry in the URGENCY file (#62.05) that maps to the same HL7 PRIORITY.

Example: Host site has three urgencies, which map to HL7 PRIORITY: ROUTINE (R).

```
Entry #     Name               LEDI HL7
-------     ---------------    --------
 2          PATIENT WAITING    ROUTINE
 9          ROUTINE            ROUTINE
10          NO RUSH            ROUTINE
```

If there is no mapping defined for this field, then the LEDI software will use the last entry in the URGENCY file (#62.05) that maps to HL7 PRIORITY: ROUTINE (R); workload urgencies are excluded. In this case the test would be ordered with an URGENCY of NO RUSH.

If the host facility enters a mapping in the this field (i.e. ROUTINE) then the lab test will be ordered using the host facility's entry for ROUTINE in the URGENCY file (#62.05) when the HL7 PRIORITY matches.

BARCODE MANIFEST field (.09): This field determines if site/patient/specimen information is bar-coded on the Shipping Manifest when it has a status of “shipped”. This field was **modified** to contain the new compact style (code=“YES-COMPACT”). There are two styles of bar codes. The regular style (code=“YES”), which was released with the original version of Laboratory Electronic Data Interchange (LEDI), produces a long bar code. If the receiving facility reading these types of bar codes, has problems then switch to the compact style (code="YES-COMPACT"). This will produce a shorter bar code.

TEST CODING SYSTEM field (#.14): This **new** field allows VA to send and receive HL7 messages from non-VA systems that use other test code ordering systems. If orders are being sent to a non-VA facility and the facility cannot accept VA test order codes then answer with the type of coding system. “NON-VA” indicates that the other system is using a local coding system. The laboratory shipping software will then use the non-VA test codes entered for each test on this configuration. If the non-VA facility can accept VA test codes then answer "NLT" and the software will send VA test order codes. VA test order codes are usually NLT codes but in the future will probably be LOINC codes. Selecting “LOINC” is currently not supported. Support will be added in a future version of the LEDI software when LOINC coding has been implemented within VA facilities.

SPECIMEN CODING SYSTEM (#.15): This **new** field allows VA to send and receive HL7 messages from other non-VA systems that do not use HL7 Table 0070 for specimen coding. DoD uses a local coding system. If orders are received from a non-VA facility and the facility cannot transmit HL7 specimen codes from HL7 table 0070 then answer with the type of coding system “LOCAL”.

TEST/PROFILE subfile (#62.9001): Integrated sites that collect specimens at one division but send the specimen to another division for testing are accessioning the test into an accession area used by the testing division, not the collection division. This field will screen to prevent all the tests within an accession area from building onto a manifest when the collection site only wants selected accessions from a specific division to build.

DIVISION field (#.025): This **new** field is used if the manifest building process should only build accessions from a certain division on a manifest, then enter the division to screen these accessions. The division used here will be the division associated with the user who created the accession. This field will allow a site to screen accessions from multiple divisions, only placing on the manifest an accession from the specified division. Host facilities: This field is not used.

REQUIRE PATIENT HEIGHT field (#1.1): This **new** field allows the sites to specify that the patient's height be sent with an order for this test. Patient's height will be prompted for and printed on manifest. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

PATIENT HEIGHT UNITS field (#1.15): This **new** field contains the units used to measure the patient's height. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that are measurements. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file does not support.

PATIENT HEIGHT CODE field (#1.16): This **new** field selects the appropriate LOINC code to identify the patient's height. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file does not support.

REQUIRE PATIENT WEIGHT field (#1.2): This **new** field determines if the patient's weight is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the patient's weight and prevent release if absent. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

PATIENT WEIGHT UNITS field (#1.25): This **new** field contains the units used to measure the patient's weight. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that are measurements. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

PATIENT WEIGHT CODE field (#1.26): This **new** field is used to select the appropriate LOINC code to identify the patient's weight. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

REQUIRE COLLECTION VOLUME field (#2.1): This **new** field determines if the specimen's collection volume is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the specimen's collection volume and prevent release if absent. This allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

COLLECTION VOLUME UNITS field (#2.15): This **new** field contains the units used to measure the specimen's collection volume. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that is a measurement. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

COLLECTION VOLUME CODE field (#2.16): This **new** field is used to enter the appropriate LOINC code to identify the specimen's collection volume. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

REQUIRE COLLECTION END D/T field (#2.2): This **new** field determines if the specimen's collection end date/time is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the specimen's collection end date/time and prevent release if absent. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

COLLECTION DURATION UNITS field (#2.25): This **new** field contains the units used to calculate the specimen's collection duration. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that is measurement and relate to time. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

COLLECTION DURATION CODE field (#2.26): This **new** field is used to enter the appropriate LOINC code to identify the specimen's collection duration. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

REQUIRE COLLECTION WEIGHT field (#2.3): This **new** field determines if the specimen's collection weight is required to be sent in the HL7 ORM order message and printed on the shipping manifest. Actual shipping and/or electronic transmission of a shipping manifest will check for entry of the specimen's collection weight and prevent release if absent. This allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

COLLECTION WEIGHT UNITS field (#2.35): This **new** field contain the units used to measure the specimen's collection weight. Select an entry from the LAB ELECTRONIC CODE file (#64.061) that is a measurement. This field allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

COLLECTION WEIGHT CODE field (#2.36): This **new** field is used to enter the appropriate LOINC code to identify the specimen's collection weight. This allows for the transmission of patient demographics and specimen characteristics that the current LAB DATA file (#63) does not support.

NON-VA TEST ORDER CODE field (#5.1): This field is now being utilized with the released of the LEDI II software application.

Collecting facilities: If sending test orders to a non-VA facility this field is used to store the test order codes used by the non-VA system. It will be used when the TEST CODING SYSTEM field (#.14) is set to "NON-VA".

Host facilities: If receiving test orders from a non-VA collecting facility that does not use VA NLT codes, this field is used to map the collecting facilities test order codes to the corresponding VA test.

NON-VA TEST ORDER NAME field (#5.2): This field is now being utilized with the released of the LEDI II software application.

Collecting facility: If sending test orders to a non-VA facility this field is used to store the test order name used by the non-VA system. It is used by the lab software to identify the test name on the non-VA system when orders are transmitted electronically. It will be used when the TEST CODING SYSTEM field (#.14) is set to "NON-VA".

Host facility: Not used - mapping of non-VA tests coding systems for test order codes is via NON-VA TEST ORDER CODE field (#5.1).

NON-VA SPECIMEN CODE field (#5.3): This **new** field is used if receiving test orders from a non-VA facility that **does not** used HL7 Table 0070 Specimen Source.

Collecting facilities: Not applicable.

Host facilities: This new field is used to store the specimen code used by the non-VA system. It is only used when the value of the SPECIMEN CODING SYSTEM field (#.15) is LOCAL-NON HL7. It provides a means for a host facility to map non-standard specimen codes to the site's TOPOGRAPHY FIELD file (#61).

NON-VA SPECIMEN NAME field (#5.4): This **new** field is used when receiving test orders from a non-VA facility that does not used HL7 Table 0070 Specimen Source.

Collecting facilities: Not applicable.

Host facilities: Use this new field to store the specimen code used by the non-VA system. It is only used when the value of the SPECIMEN CODING SYSTEM field (#.15) is LOCAL-NON HL7. It provides a means for a host facility to map non-standard specimen codes to the site's TOPOGRAPHY FIELD file (#61), if receiving test orders from a non-VA facility that does not used HL7 Table 0070 Specimen Source. It is based on the value of the SPECIMEN CODING SYSTEM field (#.15) and only used if LOCAL-NON HL7 is selected.

LAB ELECTRONIC CODES file (#64.061)

This file contains the **new** SM40 shipping code entry. This new code is used for recording "a Required Shipping Information Update Event" in the LAB SHIPPING EVENT file (#62.85).

```
NAME: Required Shipping Info Updated   LAB ABBR: SM40
TYPE: EVENT
```

REFERRAL PATIENT file (#67)

PATIENT NAME field (#03): This field has been **modified** to remove reference to the Network Health Exchange. This field controls the sequence used to lookup patient's demographic information already stored in either ^DPT(or the ^LRT(67 files. LEDI software patient accessioning functionality uses this field.

LAB PENDING ORDERS ENTRY file (#69.6)

COLLECTION END DATE/TIME field (#11.1): This **new** field is used to record the collection end date/time of specimen collection when the specimen has a timed collection, i.e. 24 hour urine, 72 hour stool, etc.

HL ENCODING CHARACTERS field (#700): This **new** field stores the HL7 field separator and encoding characters from the HL7 message used to create this pending order entry. This allows the HL7 data that is saved from the message to be processed and returned to the placer. Source of data is HL7 ORM order message.

HL PID-2 field (#700.02): This **new** field stores the placer's patient identification information from PID-2 for transmittal back to the placer when the order is completed. Source of data is HL7 ORM order message.

HL PID-4 field (#700.04): This **new** field stores the placer's patient identification information from PID-4 for transmittal back to the placer when the order is completed. Source of data is HL7 ORM order message.

REMOTE URGENCY field (#4): This **new** field stores HL7 test urgency from the placer's order message. Source of data is HL7 ORM order message.

HOST TEST field (#11): This **new** field stores the Host's File (#60) test which should be ordered when processing referral lab orders. It is built by the LEDI software when processing the HL7 ORM order message. Based on the test code from the message and the corresponding shipping configuration associated with the placer, the appropriate host test is selected and stored in this field.

HOST URGENCY field (#12): This **new** field stores the Host's facility local urgency which should be used when processing referral lab test orders. It is built by the LEDI software when processing the HL7 ORM order message. Based on the HL7 urgency from the message and the corresponding shipping configuration, the appropriate host urgency for the order is determined.

ORDERING PROVIDER field (#13): This **new** field stores the name of the provider ordering this test. It is derived from the HL7 ORM order message and contains the human readable name of the ordering provider. Source of data is HL7 ORM order message.

HL OBR-4 field (#700.04): This **new** field stores the placer's specimen identifier from the HL7 ORM order message. Source of data is HL7 ORM order message.

HL OBR-18 field (#700.18): This **new** field stores the placer's Field (#1) from the OBR segment of the HL7 ORM order message. This field is returned to the placer when the HL7 ORU result message is created and transmitted to the placer. The HL7 standard requires that the filler of an order return to the placer the value of this field. Source of data is HL7 ORM order message.

HL OBR-19 field (#700.19): This **new** field stores the placer's Field (#2) from the OBR segments of the HL7 ORM order message. This field is returned to the placer when the HL7 ORU result message is created and transmitted to the placer. The HL7 standard requires that the filler of an order return to the placer the value of this field. Source of data is HL7 ORM order message.

LEDI II New and Modified Options

The following options were created or modified to accommodate LEDI II **new** functionality:

LEDI II New Options

Edit Required Test Information [LA7S MANIFEST TEST REQ INFO] option
This option allows a user to enter/edit information that is required to be sent with a test when it is shipped. Examples can be the total volume of urine collected for a timed urine test, weight of specimen collected, duration of specimen collection, patient height and weight.

Retransmit LEDI Lab Results [LA7S RESULTS RETRANSMIT] option
This **new** option allows a user at a host facility to select one or more accessions that were received from other LEDI collecting facilities and retransmit results associated with the accession(s) to the sending/collecting facility via HL7 messaging.

These two **new** options are located on the Lab Shipping Menu [LA7S MAIN MENU], which is located on the Laboratory DHCP Menu [LRMENU].

LEDI II Modified Options

Print LEDI Pending Orders [LA7S PENDING PRINT LEDI] option:
This option is used by the host facility to print a collection facility LEDI shipping manifest report from the host facility's LAB PENDING ORDERS ENTRY file (#69.6). This option can also be used to reprint a shipping manifest report, which is lost or damaged during shipping. The user is prompted to enter the shipping manifest number, which prints a bar-coded shipping manifest report containing all of the patients entered for that manifest. The new shipping manifest report format is similar to the regular shipping manifest report received from the collection (shipping) facility.

Display Lab Universal Interface Message [LA7 PRINT LAB UI MESSAGE] option:
The logic used to print error messages associated with a UI message is **modified** to prompt the user when the Kernel Browser should be used to display a form message. If the browser is not selected then a standard “scroll and roll” display of the selected message(s) is produced. This option is located on the Lab Universal Interface Menu [LA7 MAIN MENU]. This submenu is located on the Lab Interface Menu [LA INTERFACE].

VISTA Software Requirements

Packages	Versions (or Greater)
Kernel	8.0 (with all patches installed)
Laboratory	5.2 (with all patches installed)
MAS/PIMS	5.3 (with all patches installed)
HL7	1.6 (with all patches installed)
VA FileMan	22.0 (with all patches installed)
VA MailMan	7.1 (with all patches installed)

Required Patches

Prior to the installation of the LEDI II patches LA*5.2*46/LR*5.2*222, the following patches **must** be installed:

Package Name	Associated Patches
Automated Lab Instruments V. 5.2	LA*5.2*1
Automated Lab Instruments V. 5.2	LA*5.2*17
Automated Lab Instruments V. 5.2	LA*5.2*22
Automated Lab Instruments V. 5.2	LA*5.2*23
Automated Lab Instruments V. 5.2	LA*5.2*27
Automated Lab Instruments V. 5.2	LA*5.2*42
Automated Lab Instruments V. 5.2	LA*5.2*44
Automated Lab Instruments V. 5.2	LA*5.2*45
Automated Lab Instruments V. 5.2	LA*5.2*47
Automated Lab Instruments V. 5.2	LA*5.2*50
Automated Lab Instruments V. 5.2	LA*5.2*51
Automated Lab Instruments V. 5.2	LA*5.2*55
Automated Lab Instruments V. 5.2	LA*5.2*56

Package Name	Associated Patch
Lab Service V. 5.2	LR*5.2*153

LEDI II Routine Summary List

LA Routine Summary

Routine Name	Checksum Before Patch	Checksum After Patch	Patch List
LA46	N/A	9520365	**46** (Deleted by KIDS)
LA7CHKF	10597193	11028299	**27,46**
LA7QRY	N/A	1084520	**46**
LA7QRY1	N/A	3509927	**46**
LA7QRY2	N/A	4552927	**46**
LA7SBCR	1495927	653666	**27,46**
LA7SBCR1	7086650	4924406	**27,46**
LA7SBCR2	3323374	2564479	**27,46**
LA7SCE	10260809	11402708	**27,46**
LA7SM	16316313	10277989	**27,46**
LA7SM1	2146828	8553973	**27,46**
LA7SM2	N/A	12143125	**46**
LA7SMB	17707549	14649107	**27,46**
LA7SMP	15792287	11746903	**27,45,46**
LA7SMP0	N/A	9303222	**46**
LA7SMPXL	5400542	3215234	**27,42,46**
LA7SMU	11040439	7104257	**27,46**
LA7SMU1	5335635	6241668	**27,46**
LA7SMU2	N/A	5290542	**46**
LA7SRR	N/A	6233015	**46**
LA7UIIN2	9850298	12296505	**17,23,27,46**
LA7UTILA	11812487	10237097	**23,27,46**
LA7VHL	8527903	4500486	**27,46**
LA7VHLU	N/A	4469720	**46**
LA7VHLU1	N/A	2011157	**46**
LA7VHLU2	N/A	3873916	**46**
LA7VHLU3	N/A	2007360	**46**
LA7VHLU4	N/A	5424804	**46**
LA7VHLU5	N/A	5541950	**46**
LA7VIN	N/A	1398763	**46**
LA7VIN1	N/A	5261630	**46**
LA7VIN2	N/A	5808892	**46**
LA7VIN3	N/A	2061956	**46**
LA7VIN4	N/A	7936019	**46**
LA7VIN5	N/A	5205707	**46**
LA7VIN5A	N/A	5039195	**46**
LA7VMSG	16357149	3253314	**27,50,56,46**
LA7VMSG1	3358807	8200340	**56,46**
LA7VOBR	N/A	2129056	**46**
LA7VOBRA	N/A	5326634	**46**
LA7VOBX	N/A	2088674	**46**
LA7VOBX1	N/A	3799868	**46**
LA7VOBX2	N/A	4350324	**46**

LA7VOBX3	N/A	5240738	**46**
LA7VOBXA	N/A	6232009	**46**
LA7VORC	N/A	1565653	**46**
LA7VORM	17384019	6471896	**27,42,46**
LA7VORM1	20868841	7601990	**27,51,46**
LA7VORM2	N/A	3426954	**46**
LA7VORM3	N/A	6787219	**46**
LA7VORU	10077624	8070282	**27,46**
LA7VORU1	N/A	4734718	**46**
LA7VORU2	N/A	1962290	**46**
LA7VPID	N/A	4123683	**46**
LA7VSET	19500034	15979413	**27,51,55,46**
LA7VSET1	12858976	9065449	**27,51,55,46**
LA7VSTP	6154318	6079680	**27,44,51,46**
LA7VSTP1	8332246	3317926	**27,46**
LAGEN	9445120	8522786	**1,17,22,27,47,46**
LASET	6644420	6955342	**27,42,46**

List of preceding patches: 42, 45, 47, 51, 55, 56
Sites should use CHECK^XTSUMBLD to verify checksums.

LR Routine Summary

Routine Name	Checksum Before Patch	Checksum After Patch	Patch List
LR222	N/A	6987123	**222** (Deleted by KIDS)
LRDPAREF	6854898	5111405	**153,222**
LRORDB	3786248	3782224	**153,222**

List of preceding patches: 153
Sites should use CHECK^XTSUMBLD to verify checksums

Installation Instructions

NOTES:

Kernel, MailMan, and HL patches **must** be current on the target system to avoid problems loading and/or installing this patch.

Patch installation needs to be coordinated with the Laboratory Information Manager (LIM/ADPAC).

The LIM/ADPAC needs to perform the LEDI II setup as explained in the LEDI II User Manual if applicable.

The install time for this patch is less than 15 minutes. This patch can be installed when Laboratory users are on the system. However the following conditions apply:

- All Lab LEDI (LA7V*) related HL v1.6 LLPs should be shutdown.
- All Lab (Lab Universal Interface) related HL v1.5 LLPs should be stopped.

1. If any of the above routines are mapped, disable mapping for them.

2. On the 'Kernel Installation & Distribution System' Menu (KIDS), select the 'Installation' menu.

3. Use the 'Load a Distribution' option and entry LAB_LEDI_II.KID as the host file.

4. The patch has now been loaded into a Transport global on your system. You now need to use KIDS to install the transport global.

5. Use the 'Verify Checksum in Transport Global' option and verify that all routines have the correct checksums.

6. On the KIDS menu, under the 'Installation' menu, use the following options:

- Print Transport Global
- Compare Transport Global to Current System

7. If you wish to preserve a copy of the routines exported in this patch prior to installation, you should use the 'Backup a Transport Global' option at this time. You may also compare the routines in your production account to the routines in the patch by using the 'Compare a Transport Global to Current System' option. These options can both be found under the 'Installation' menu.

8. Perform the following steps if applicable:

- All Lab LEDI (LA7V*) related HL v1.6 LLPs should be shutdown.
- Use the HL menu option Start/Stop Links [HL START] to shutdown these LLPs if they are running.

- All Lab Universal Interface related HL v1.5 LLPs should be stopped. These LLPs are “TaskMan aware”. Use the Kernel TaskMan User [XUTM USER] option to shutdown these tasks. The appropriate task number of the task will be required by this option. This Kernel TaskMan User [XUTM USER] option is usually located on a user’s common menu User's Toolbox [XUSERTOOLS].

9. Use the 'Install Package(s)' option under the 'Installation' menu and select the package 'LA*5.2*46'.

All LA7V* protocols should be placed out of service during the install. This can be accomplished by answering the KIDS install questions:

Want to DISABLE Scheduled Options, Menu Options, and Protocols?
YES// choose ‘YES.’

Enter options you wish to mark as ‘Out Of Order': LA7S*, LA7V*, and LRLEDI

Enter protocols you wish to mark as ‘Out Of Order’: LA7V*

NOTE: Disregard the following message.

"Data Dictionary for File #62.485 not installed."

This KIDS build sends data for this file but there are no changes to the file's data dictionary.

10. On a mapped system, rebuild your map set.

11. Routine LA46 and LR222 will be deleted after successful patch installation.

LEDI II Installation Example

```
Select Installation Option: INStall Package(s)<RET>
Select INSTALL NAME:    LA*5.2*46<RET>     Loaded from Distribution
2/1/02@10:54:09
     => LA*5.2*46/LR*5.2*222 TEST v44 on 23 Jan 2002  ;Created on Jan 23, 2002

This Distribution was loaded on Feb 01, 2002@10:54:09 with header of
   LA*5.2*46/LR*5.2*222 TEST v44 on 23 Jan 2002  ;Created on Jan 23,
2002@13:23: 45
   It consisted of the following Install(s):
      LA*5.2*46     LR*5.2*222
Checking Install for Package LA*5.2*46
Will first run the Environment Check Routine, LA46


               Sending install started alert to mail group G.LMI

                        --- Environment Check is Ok ---

Install Questions for LA*5.2*46

Incoming Files:


   62.4      AUTO INSTRUMENT  (Partial Definition)
Note:  You already have the 'AUTO INSTRUMENT' File.


   62.48     LA7 MESSAGE PARAMETER  (Partial Definition)
Note:  You already have the 'LA7 MESSAGE PARAMETER' File.


   62.485    LA7 MESSAGE LOG BULLETINS  (including data)
Note:  You already have the 'LA7 MESSAGE LOG BULLETINS' File.
I will OVERWRITE your data with mine.


   62.49     LA7 MESSAGE QUEUE  (Partial Definition)
Note:  You already have the 'LA7 MESSAGE QUEUE' File.


   62.8      LAB SHIPPING MANIFEST  (Partial Definition)
Note:  You already have the 'LAB SHIPPING MANIFEST' File.


   62.9      LAB SHIPPING CONFIGURATION  (Partial Definition)
Note:  You already have the 'LAB SHIPPING CONFIGURATION' File.

Want KIDS to Rebuild Menu Trees Upon Completion of Install? YES//NO<RET>
```

```
Checking Install for Package LR*5.2*222
Will first run the Environment Check Routine, LR222

               Sending install started alert to mail group G.LMI

                        --- Environment Check is Ok ---

Install Questions for LR*5.2*222

Incoming Files:


   64.061    LAB ELECTRONIC CODES  (including data)
Note:  You already have the 'LAB ELECTRONIC CODES' File.
I will OVERWRITE your data with mine.


   67        REFERRAL PATIENT  (Partial Definition)
Note:  You already have the 'REFERRAL PATIENT' File.


   69.6      LAB PENDING ORDERS ENTRY  (Partial Definition)
Note:  You already have the 'LAB PENDING ORDERS ENTRY' File.


Want KIDS to INHIBIT LOGONs during the install? YES// NO<RET>
Want to DISABLE Scheduled Options, Menu Options, and Protocols? YES// YES<RET>

Enter options you wish to mark as 'Out Of Order': LA7S*<RET>

Enter options you wish to mark as 'Out Of Order': LA7V*<RET>

Enter options you wish to mark as 'Out Of Order': LRLEDI<RET>

Enter options you wish to mark as 'Out Of Order': <RET>

Enter protocols you wish to mark as 'Out Of Order':LA7V*<RET>

Enter protocols you wish to mark as 'Out Of Order':<RET>

Delay Install (Minutes):  (0-60): 0//<RET>

Enter the Device you want to print the Install messages.
You can queue the install by enter a 'Q' at the device prompt.
Enter a '^' to abort the install.

DEVICE: HOME//<RET>   TELNET

Install Started for LA*5.2*46 :
               Feb 04, 2002@18:06:19

Build Distribution Date: Jan 23, 2002
```

```
 Installing Routines:
               Feb 04, 2002@18:06:20

 Running Pre-Install Routine: PRE^LA46

                          *** Pre install started ***

                           --- No action required ---

                         *** Pre install completed ***
Installing Data Dictionaries:
               Feb 04, 2002@18:06:21

 Installing Data:
               Feb 04, 2002@18:06:21
 Installing PACKAGE COMPONENTS:

 Installing OPTION
               Feb 04, 2002@18:06:22

 Running Post-Install Routine: POST^LA46

                          *** Post install started ***

               *** Checking LAB SHIPPING MANIFEST file #62.8 ***

                *** for missing data in field SHIP VIA #.04 ***

  *** updating with information from file LAB SHIPPING CONFIGURATION #62.9 ***

                           *** when appropriate. ***

*** Checking data:

                       --- No entries required updating ---

               *** Checking LA7 MESSAGE PARAMETER file #62.48 ***

                 *** Updating processing routine as needed ***

                       --- No entries required updating ---

                 Updating package revision data for file #62.9

                  --- No actions required for post install ---

                          *** Post install completed ***

              Sending install completion alert to mail group G.LMI

 Updating Routine file...

 Updating KIDS files...
```

```
 LA*5.2*46 Installed.
               Feb 04, 2002@18:06:22

 Install Message sent #25096

 Install Started for LR*5.2*222 :
               Feb 04, 2002@18:06:23

Build Distribution Date: Jan 23, 2002

 Installing Routines:
               Feb 04, 2002@18:06:23

 Running Pre-Install Routine: PRE^LR222

                          *** Pre install started ***

   *** Deleting field Patient Name (#3) from file REFERRAL PATIENT (#67) ***

                   *** Will be re-installed by this patch ***

                          *** Pre install completed ***

 Installing Data Dictionaries:
               Feb 04, 2002@18:06:23

 Installing Data:
               Feb 04, 2002@18:06:24

                                    LR*5.2*222
-------------------------------------------------------------------------------
 Running Post-Install Routine: POST^LR222

                          *** Post install started ***

                  --- No actions required for post install ---

                          *** Post install completed ***

              Sending install completion alert to mail group G.LMI

 Updating Routine file...

 Updating KIDS files...

 LR*5.2*222 Installed.
               Feb 04, 2002@18:06:24

 Install Message sent #25097
-------------------------------------------------------------------------------
          +---------------------------------------------------------+
  100%    |             25             50             75            |
Complete  +---------------------------------------------------------+
```

Post-Installation Instructions

The following two steps **must** be performed after a successfully installation of the LEDI II software:

Step #1. Restart any LA7V* HL v1.6 LLP's shutdown performed as part of the patch installation process.

IRM: Use the Start LLP [HL START] option to restart LA7V* HL v1.6 LLP's.

Step #2. Restart any Lab Universal Interface HL v1.5 LLP's shutdown performed as part of the patch installation process.

IRM: Use the Initiate Background Task [HL TASK] option to restart Laboratory Universal Interface HL v1.5 LLP's.